

1 This listing of claims will replace all prior versions, and listings, of claims  
2 in the application:

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4 **Listing of Claims**

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6 Claim 1 (previously amended): A method comprising:  
7 identifying, in response to a search/query, first multimedia objects having  
8 an associated keyword that matches a keyword in the search query and second  
9 multimedia objects that have content features similar to those of the first  
10 multimedia objects;

11 presenting the first and second multimedia objects to a user;  
12 monitoring feedback from the user as to which of the first and second  
13 multimedia objects are relevant to the search query; and  
14 annotating one or more of the multimedia objects, which are deemed  
15 relevant by the user, with the keyword.

16  
17 Claim 2 (original): A method as recited in claim 1, further comprising:  
18 maintaining associations between the keywords and the multimedia objects,  
19 the associations being weighted to indicate how relevant the keywords are to the  
20 multimedia objects; and  
21 adjusting the weights of the associations based on the user's feedback.

22  
23 Claim 3 (original): A method as recited in claim 2, wherein the adjusting  
24 comprises increasing a weight of an association between the keyword and a  
25 particular multimedia object that is deemed relevant by the user.

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1  
2 Claim 4 (original): A method as recited in claim 2, wherein the adjusting  
3 comprises decreasing a weight of an association between the keyword and a  
4 particular multimedia object that is deemed irrelevant by the user.

5  
6 Claim 5 (original): A method as recited in claim 4, further comprising  
7 removing the keyword from the particular multimedia object in an event that the  
8 weight is less than a threshold value.

9  
10 Claim 6 (original): A method as recited in claim 1, further comprising  
11 training how the first and second multimedia objects are identified based on the  
12 user's feedback.

13  
14 Claim 7 (original): A method as recited in claim 1, further comprising  
15 refining the search to identify additional multimedia objects that contain content  
16 features similar to those of the multimedia objects indicated by the user as being  
17 relevant.

18  
19 Claim 8 (original): A method as recited in claim 1, wherein the multimedia  
20 objects comprise one of digital images, video objects, and audio objects.

21  
22 Claim 9 (original): A computer readable medium having computer-  
23 executable instructions that, when executed on a processor, perform the method as  
24 recited in claim 1.  
25

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1 Claim 10 (original): A method comprising:  
2 iteratively retrieving multimedia objects from a database and monitoring  
3 feedback from a user as to whether the multimedia objects are relevant to a  
4 keyword in a search query; and  
5 annotating the multimedia objects based on the user's feedback, with the  
6 keyword.

7  
8 Claim 11 (original): A method as recited in claim 10, wherein the  
9 retrieving comprises using content-based information retrieval to retrieve the  
10 multimedia objects.

11  
12 Claim 12 (original): A method as recited in claim 10, wherein the  
13 retrieving comprises using both content-based information retrieval and semantic-  
14 based information retrieval to retrieve the multimedia objects.

15  
16 Claim 13 (original): A method as recited in claim 10, wherein the  
17 monitoring comprises monitoring both feature-based relevance feedback and  
18 semantic-based relevance feedback.

19  
20 Claim 14 (original): A method as recited in claim 10, wherein the  
21 annotating is hidden from the user.

22  
23 Claim 15 (original): A method as recited in claim 10, wherein the  
24 annotating comprises:  
25

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1 in an event that a particular multimedia object is deemed relevant by the  
2 user and is not yet annotated with the keyword, adding the keyword to the  
3 particular multimedia object; and

4 in an event that the particular multimedia object is deemed relevant by the  
5 user and is already annotated with the keyword, strengthening an association  
6 between the keyword and the particular multimedia object.

7  
8 Claim 16 (original): A method as recited in claim 10, wherein the  
9 annotating comprises:

10 in an event that a particular multimedia object is deemed irrelevant by the  
11 user and is already annotated with the keyword, weakening an association between  
12 the keyword and the particular multimedia object.

13  
14 Claim 17 (original): A computer readable medium having computer-  
15 executable instructions that, when executed on a processor, perform the method as  
16 recited in claim 10.

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17  
18 → Claim 18 (original): A method comprising:  
19 retrieving multimedia objects according to a content-based retrieval  
20 process;

21 presenting the multimedia objects to a user;  
22 monitoring feedback from the user as to which of the multimedia objects  
23 are relevant; and

24 annotating one or more of the multimedia objects based on the user's  
25 feedback, with a keyword.

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2 Claim 19 (original): A method as recited in claim 18, wherein the  
3 monitoring comprises monitoring both feature-based relevance feedback and  
4 semantic-based relevance feedback.  
5

6 Claim 20 (original): A method as recited in claim 18, wherein the  
7 annotating is hidden from the user.  
8

9 Claim 21 (original): A method as recited in claim 18, wherein the  
10 annotating comprises:

11 in an event that a particular multimedia object is deemed relevant by the  
12 user and not yet annotated with the keyword, adding the keyword to the particular  
13 multimedia object; and

14 in an event that the particular multimedia object is deemed relevant by the  
15 user and is already annotated with the keyword, strengthening an association  
16 between the keyword and the particular multimedia object.  
17

18 Claim 22 (original): A method as recited in claim 18, wherein the  
19 annotating comprises:

20 in an event that a particular multimedia object is deemed irrelevant by the  
21 user and is already annotated with the keyword, weakening an association between  
22 the keyword and the particular multimedia object.  
23

24 Claim 23 (original): A method as recited in claim 18, wherein the  
25 annotating comprises:

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1 in an event that a particular multimedia object is deemed irrelevant by the  
2 user and is already annotated with the keyword, removing the keyword from the  
3 particular multimedia object.  
4

5 Claim 24 (original): A computer readable medium having computer-  
6 executable instructions that, when executed on a processor, perform the method as  
7 recited in claim 18.  
8

9 Claim 25 (original): A method comprising:  
10 maintaining associations between keywords and multimedia objects, the  
11 associations being weighted to indicate how relevant the keywords are to the  
12 multimedia objects;  
13 retrieving a set of one or more multimedia objects for presentation to a user;  
14 monitoring feedback from the user as to which of the multimedia objects  
15 are relevant; and  
16 adjusting the weights of the associations based on the user's feedback.  
17

18 Claim 26 (original): A method as recited in claim 25, wherein the  
19 retrieving comprises using content-based information retrieval to retrieve the  
20 multimedia objects.  
21

22 Claim 27 (original): A method as recited in claim 25, wherein the  
23 retrieving comprises using both content-based information retrieval and semantic-  
24 based information retrieval to retrieve the multimedia objects.  
25

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1 Claim 28 (original): A method as recited in claim 25, wherein the  
2 monitoring comprises capturing both feature-based relevance feedback and  
3 semantic-based relevance feedback.  
4

5 Claim 29 (original): A method as recited in claim 25, wherein the adjusting  
6 comprises increasing the weights of the associations between the keywords and the  
7 multimedia objects that are deemed relevant by the user.  
8

9 Claim 30 (original): A method as recited in claim 25, wherein the adjusting  
10 comprises decreasing the weights of the associations between the keywords and  
11 the multimedia objects that are deemed irrelevant by the user.  
12

13 Claim 31 (original): A computer readable medium having computer-  
14 executable instructions that, when executed on a processor, perform the method as  
15 recited in claim 25.  
16

17 Claim 32 (original): A system comprising:  
18 an information retrieval unit to retrieve multimedia objects from a database  
19 based on a search query;  
20 a relevance feedback unit to capture a user's feedback as to whether the  
21 multimedia objects are relevant to the search query; and  
22 an annotation unit to annotate, with a keyword, the multimedia objects  
23 based on the user's feedback.  
24  
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1 Claim 33 (original): A system as recited in claim 32, wherein the search  
2 query comprises a keyword-based search query having one or more keywords.

3  
4 Claim 34 (original): A system as recited in claim 32, wherein the search  
5 query comprises a content-based search query having one or more content features.

6  
7 Claim 35 (original): A system as recited in claim 32, wherein the  
8 information retrieval unit employs both content-based information retrieval and  
9 semantic-based information retrieval.

10  
11 Claim 36 (original): A system as recited in claim 32, wherein the  
12 information retrieval unit comprises:

13 a query handler to handle both keyword-based queries having one or more  
14 search keywords and content-based queries having one or more content features of  
15 a multimedia object; and

16 a feature and semantic matcher to identify at least one of (1) first  
17 multimedia objects having keywords that match the search keywords from a  
18 keyword-based query, and (2) second multimedia objects having content features  
19 similar to the content features of a content-based query.

20  
21 Claim 37 (original): A system as recited in claim 32, wherein the relevance  
22 feedback unit employs both feature-based relevance feedback and semantic-based  
23 relevance feedback.

24  
25 Claim 38 (original): A system as recited in claim 32, wherein:



the search query comprises a keyword-based search query having at least one keyword; and

in an event that a particular multimedia object is deemed relevant by the user and is not yet annotated with the keyword, the annotation unit adds the keyword to the particular multimedia object.

Claim 39 (original): A system as recited in claim 32, wherein:

the search query comprises a keyword-based search query having at least one keyword; and

in an event that a particular multimedia object is deemed relevant by the user and is already annotated with the keyword, the annotation unit strengthens an association between the keyword and the particular multimedia object.

Claim 40 (original): A system as recited in claim 32, wherein:

the search query comprises a keyword-based search query having at least one keyword; and

in an event that a particular multimedia object is deemed irrelevant by the user and is already annotated with the keyword, weakening an association between the keyword and the particular multimedia object.

Claim 41 (original): A system as recited in claim 32, wherein:

the search query comprises a keyword-based search query having at least one keyword; and

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1 in an event that a particular multimedia object is deemed irrelevant by the  
2 user and is already annotated with the keyword, removing the keyword from the  
3 particular multimedia object.  
4

5 Claim 42 (original): An image retrieval system as recited in claim 32,  
6 wherein the relevance feedback unit comprises a feedback analyzer to train the  
7 system based on the user's feedback.  
8

9 Claims 43-44 (previously withdrawn)  
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